ART. III.—DESCRIPTIONS OF NEW TINEINA FROM TEXAS, AND OTHERS FROM MORE NORTHERN LOCALITIES.

By V. T. Chambers.

ANAPHORA.

A. TEXANELLA, *n. sp.*

Very distinct from *plumifrontella*, *popeanella*, and *arcanella* Clem., and from *agrotipenella* and *mortipenella* Grote, nor can I recognize it at all in either *Scardina* or *Bombycina* as described by Zeller.

Palpi overarching the thorax; dark brown on the outward, luteous-brown on the inner surfaces. Antennæ compressed, straw-yellow; thorax dark gray-brown; fore wings brown, tinged with grayish-yellow; the usual spot at the end of the disk indistinct; the other spots common to the wings of the other species I cannot find in this. One of them may be represented by an indistinct blackish line beneath the middle of the fold. Hind wings and abdomen fuscous-gray, like the thorax, and a little darker or rather less yellowish than the fore wings. Under surface of both wings grayish-fuscous. Smaller than any specimens that I have seen of the other species, having an *alar expansion* of only nine lines. Bosque County, Texas.

TINEA.

T.? 7-STRIGELLA, *n. sp.*

Vertex white: basal joint of antennæ white on the upper, brown on the lower surface; stalk of antennæ black, with a white line along each side. Thorax and basal half of fore wings blackish-brown, the apical half having its costal half blackish-brown and its dorsal half white, the costal brown of the apical half being separated from the basal brown half by a white costal streak, which extends into the dorso-apical white part; beyond this costal white streak are five others, which likewise extend across the costo-apical brown to the dorso-apical white part of the wing, thus dividing it into a number of large spots; the first of these five streaks is oblique, the others perpendicular to the costal margin, and the space or brown spot between the second and third is larger than that between the others. Dorsal cilia brown, with numerous narrow white streaks running up through them from the dorsal white margin. In the basal half of the wing, there is a narrow white line extending along the fold, and an oblique white costal streak which almost reaches the fold. Face and palpi grayish-fuscous. Under surface of

body and the legs yellowish. *Alar expansion* a little over one-fourth of an inch. Bosque County, Texas.

The palpi in my single specimen are a little injured, and I have not examined the neuration. Possibly it may not be a true *Tinea*.

T. UNOMACULELLA, *Cham.*

Besides the yellow spot at the end of the disk mentioned in the description of this species, there is also a smaller one on the fold near its end, and one on the extreme apex of the thorax. There are also about seven small ones around the base of the cilia, and frequently the wing is more or less dusted with yellow scales.

ANESYCHIA.

A. HAGENELLA, *n. sp.*

Costal part of the fore wings nearly to the tip, and spreading nearly half across the wing in width, blackish-brown; the remainder of the wing white except as follows: the dark brown sends five projections or teeth into the white; the first is near the base, the second a little farther back, third about the middle, the fourth a little behind the third, and the fifth projects toward the apex; there is a small blackish spot on the base, then a very small one, then one a little larger, all beneath the fold; then another on the fold, another beneath it again, and then two others above it; there is also a minute spot on the basal angle, and nine others (six costal and three dorsal) around the base of the cilia. There are also eight spots on the thorax, one of them just before the base of the wings, one just behind each eye, two on the disk, and one on each side of the apex. Head white; antennæ fuscous; second palpal joint blackish, tipped with white, third white; hind wings silvery-white; abdomen fuscous: legs pale stramineous, with a silvery lustre, stained with brown on their anterior surfaces. *Alar expansion* 9½ lines. It resembles *A. trifurcella* Cham. more nearly than any of our other species. Bosque County, Texas.

HYPONOMEUTA.

H. ZELLERIELLA, *n. sp.*

This species approaches nearer to *H. longimaculella* Cham. than to any of our other species. The third palpal joint is white, dusted with blackish scales; second joint blackish, tipped with white. Head white. Basal joint of antennæ white, tipped at the apex above with brown; stalk fuscous; thorax white, with a black spot behind each eye, and one touching the base of each wing, one above each tegula, and one on each side of the apex. Fore wings white, with the costal third stained with pale ochreous, and separated from the white part by three long black dashes, the first of which is before the middle, the second extends back from about the middle, and the third is just before the apex. In the pale ochreous costal part of the wing is a short fuscous basal streak just within the costa, and behind it is a small fuscous costal spot. Just

within the costa, about midway of the wing-length, is another small spot, and another just before the cilia, slightly within the margin. The direction of all these spots is longitudinal, and under the lens all this pale ochreous or discolored costal part of the wing is minutely sprinkled with blackish scales. In the white dorsal part of the wing is a black basal spot on the fold, another a little farther back on the fold, then two beneath the fold, another on the fold about midway of the length of the wing, behind that is another on the fold, then another beneath it, and then another, and yet another above the fold; there is also an indistinct dash just beyond the anal angle, and then the usual nine spots around the base of the cilia, three of them costal. Hind wings silvery-white, with a faint fuscous tinge. Abdomen fuscous above; tuft, under surface and legs straw-yellow. *Alar expansion* 10½ lines. Bosque County, Texas.

DEPRESSARIA.

In volume 4 of the Canadian Entomologist I described several species which I then placed in this genus. I was induced to place them here by the fact that I did not then know the indefinite extent of the genus *Gelechia*, and believed, as I still do, that the affinities of these species were rather with *Depressaria* than with the true *Gelechia*, and I was not acquainted with *Cryptolechia*. Subsequently some of those species were referred to *Cryptolechia*, but most of them to *Gelechia*, one forming the type of a new genus, *Cirrha*. There is, however, no sufficient reason perhaps for separating this species (*C. platanella*) from *Gelechia* as at present *un*restricted, for *Gelechia* at present is a miscellaneous assemblage of species, many of which possess but little affinity for each other. Thus, all the species which in volume 4 I referred to *Depressaria* are referred to *Gelechia* or *Cryptolechia* except two?—*D. versicolorella* and *D. pallidochrella*, and neither of these is a true *Depressaria*, though perhaps as properly located in it as in *Gelechia*, especially *D. versicolorella*. Thus, among over three hundred species of *Tineina* that I have found in Kentucky, the one described below as *D. eupatoriiella* is the only *Depressaria*, and it is an aberrant species. The species described below as *D. fernaldella* was received from Professor Fernald from Orono, Maine; and, as illustrating the multitude and variety of the species of *Tineina* in this country, I will here state that, according to my estimate, not less than eight hundred species of *Tineina* have been described from Canada and the United States south and west of Massachusetts (including that State), and not more than ten (probably not more than nine) belong properly in this genus. These are *atrodorsella* Clem., *cinereocostella* Clem., *grotella* Robinson, *heraclina* Deg., *hilarella* Zell., *lecontella* Clem., *nebulosa* Zell., *pulvipenella* Clem., *scabella* Zell., and *robiniella* Pack.

The collection received from Professor Fernald contained twenty-eight species, six of which belong to *Depressaria*, viz:—*hilarella?* (I cannot determine it with certainty from the single worn specimen), *lecontella*, *atrodorsella*, *pulvipenella*, *fernaldella*, n. sp., and another smaller

(new?) species, of which there is a single worn specimen; while, as above stated, I have found but a single *Depressaria* among over three hundred species found in Kentucky. Of the twenty-eight species in the Fernald collection, fourteen are believed to be new; and, in addition to the *Depressariæ* above mentioned, I recognize in it the following species:—*Tinea biflavimaculella* Clem., *T. grisseella* Cham., *T. carnariiella* Clem., *Amadrya effrenatella* Clem., *Adela biviella* Zell., *Gelechia dubitella?* Cham., *Ypsolophus straminiella* Cham., *Gracilaria purpuriella* Cham., and *Hyponomeuta evonymella* auct. Eight of the fourteen new species belong to *Gelechia* and two to *Cryptolechia*.

D. EUPATORIIELLA, *n. sp.*

Second joint of the palpi incrassate beneath toward the apex, the scales rather long and loose, scarcely forming a brush, and in the dead specimens not divided. Palpi, head, thorax, and fore wings dark or fuscous-gray; the palpi and wings dusted with blackish atoms, *each of which is a minute tuft*, and which along the costa take the form of small, obscure, and indistinct streaks; on the disk, before the middle, one of the blackish atoms is very obscurely margined behind by one or two whitish scales, and about the end of the disk is a minute whitish speck; apex of the wings rounded; hind wings not emarginate beneath the apex, pale grayish, with a faint purplish lustre—perhaps pale grayish-yellow would be as correct as pale gray; abdomen above of the same color, with the hind wings depressed, scarcely tufted at the sides; beneath it is gray, with a blackish spot on each side of each segment; legs dark gray or fuscous; under surface of the fore wings grayish-fuscous; that of the hind wings gray on the disk, the margins pale ochreous-yellow, dotted with blackish atoms. Antennæ fuscous, scarcely pectinate. The upper surface of the thorax is not dusted, and has a small double or bifid tuft at the apex. *Alar expansion* eleven lines. The larva feeds upon the under surface of the leaves of *Eupatorium ageratoides*, much in the same manner with that of *Nothris eupatoriiella* Cham. I did not observe it, as the leaves, when gathered, were supposed to be folded by the *Nothris* larva. The imago emerges in the latter part of July. 2 ♂, 1 ♀. Kentucky.

Both *atrodorsella* Clem. and *lecontella* Clem. have the minute bifid tuft on the thorax, as in this species, and the antennæ scarcely pectinate. The second joint of the palpi is, however, more brush-like in those species.

D. FERNALDELLA, *n. sp.*

Palpi slender, scarcely brush-like; antennæ scarcely pectinate; abdomen flattened above, scarcely tufted at the sides; apex of fore wings more acute, and the costa more arched than in *eupatoriiella*, *lecontella*, *atrodorsella*, or *pulvipenella*, and the wings also wider; indeed, in these respects it exceeds perhaps any of the species figured in Nat. Hist. Tin., vols. 1 and 12. The palpi are also unusually slender. Nevertheless, I

think it is more properly referable to this than to any other genus. Palpi whitish, with the basal half of the outer surface of second joint brown. Head whitish. Both head and palpi have, however, a faint pinkish-yellow tinge, and the antennæ are still more distinctly tinged with it. Thorax and fore wings very pale ochreous, with a strong roseate or pinkish tinge. On the disk before the middle is a small blackish dot, which under the lens is resolved into two; further back, behind the middle, is another, and opposite the space between the two is another on the fold; these two latter are by a lens resolved into small spots of brownish dusting; farther back is a brownish line parallel (nearly) with the dorso-apical margin, but which the lens resolves into about nine small spots of dustings, scarcely confluent with each other, and one on each marginal veinlet (costal as well as dorsal); around the apex and margins near it are ten small brownish spots, scarcely visible or very indistinct without a lens. Hind wings yellowish, irrorate with fuscous, not emarginate beneath the apex; abdomen of nearly the same color with the hind wings; legs brownish on their anterior surfaces, the hind tarsi pale yellowish. *Alar expansion* 10 lines. Maine.

YPSOLOPHUS.

Y. QUERCIELLA, *Cham.*

The single bred specimen from which this was described was accidentally destroyed some years ago. From my notes and recollection of the species, I think it not improbable that it belongs in *Depressaria*, with palpi resembling those of *D. dictamnella* Zell.

DEPRESSARIA.

D. FERNALDELLA. (*Supra.*)

Since the preceding portion of this paper was prepared, I have received a letter from Professor Fernald, in which he states that he has "seen *Machimia tentorifuella* Clem., which seems to be identical with your [my] *Depressaria fernaldella*". I have not seen *tentorifuella*, and the species *may* be thesame. There is certainly a close resemblance in many points; but an examination of *fernaldella* and a comparison of it with *tentorifuella*, as described by Clemens, shows many discrepancies. Thus *tentorifuella* has the vertex "*shaggy*", which is incorrect as applied to *fernaldella*. The latter has a row of ten small blackish spots around the apex, which are not mentioned by Dr. Clemens; and, furthermore, it has a brownish line before these spots, and nearly parallel to them, which is so unusual a mark that I think it must have struck Dr. Clemens had it existed in his species; yet he does not mention it. There are other less striking differences in ornamentation. *D. fernaldella*, while not a typical *Depressaria* by any means, seems to me to be more appropriately located in that genus than in *Cryptolechia*, to which I should refer *tentorifuella* as described by Clemens, and to which it has been referred by Zeller. While, therefore, the species *may* be the same, I, for the present at least, consider them to be distinct.

CRYPTOLECHIA.

In the Can. Ent. iv. 129, I have attempted to define a new genus under the name of *Hagno*, and in that connection have alluded to its resemblance to *Psilocorsis* Clem., which was known to me only by Dr. Clemens's writings, not having seen any of his species. The wings of *Psilocorsis*, as described by Dr. Clemens, seemed to me to differ materially from those of *Hagno*. I also suggested the probability that both might prove to be equivalent to *Cryptolechia*, which was then known to me only by scattered notices in various books. I find that *Hagno* is equivalent to *Psilocorsis*, and both are equivalent to a section of *Cryptolechia*.

C. CRYPTOLECHIÆELLA.

Depressaria? cryptolechiœella, Cham. Can. Ent. iv. 91.
Hagno cryptolechiœella, Cham. *ibid.* 132.

Smaller and prettier than any of the allied species known to me. The wings have a faint pinkish or roseate lustre, and have the lustre also of "watered silk". The transverse blackish lines are not visible to the naked eye, and the base of the wings is orange-yellow. If my recollection is not at fault, the larva feeds on leaves of the Holly (*Ilex*).

C. FAGINELLA.

Hagno faginella, Cham. Can. Ent. iv. 131.

The close resemblance of some allied species makes a more detailed description of this species than that heretofore given necessary.

The palpi are ochreous, with a blackish line along the under surface of the second joint, continued on to the apex of the third, and another on the outer and one on the inner surface of the third joint. *Cryptolechia* (*Psilocorsis*) *quercicella* Clem., according to Dr. Clemens, has the third joint black, with two yellowish-white stripes in front. I, however, have not seen the species, and I know from experience how easy it is to make a mistake as to the number and position of these lines. A species from Texas which I formerly (Can. Ent. vi. 231) identified with *faginella*, but which I now consider distinct (*vid. post*), and an undescribed species, of which a single specimen is before me, have the palpi exactly as I have described them in *faginella*—that is, the upper surface of the third joint is ochreous instead of black, as Dr. Clemens's account would make it. *C. faginella* has the head ochreous-yellow, and the thorax of the same color, only darker, as if tinged with fuscous. In this, the Texan species agrees with it. The undescribed species above mentioned, which is from Missouri, and has been bred by Professor Riley and Miss Murtfeldt from a larva feeding on *Ambrosia* has the head darker than in *faginella*, and of the same color with the thorax. *C. quercicella*, according to Dr. Clemens, has the head and thorax yellowish-brown (as in the Missouri specimen). *P. reflexa*, as described by Dr. Clemens, has the palpi as in *faginella* as to ornamentation; but from the fact that Dr. Clemens

separates it from *quercicella* as a distinct section, characterized by the great length of the palpi, it is not necessary to refer to it further in this connection. *C. faginella* has the basal joint of the antennæ yellowish-ochreous, except a wide blackish line extending along its upper surface; *quercicella* has "two black stripes in front"; and the species from Texas and that from Missouri agree in this respect with *quercicella*. *C. faginella* and also the Texas and Missouri specimens have the stalk of the antennæ ochreous-yellow, with two blackish lines extending along the upper side of the basal half, and the remainder of the stalk has each alternate joint blackish; *quercicella* has simply "a black line above, terminating in black spots". In *quercicella*, the fore wings are "yellowish-brown, varied with blackish irregular striæ, chiefly from the costa, with a black dot on the end of the disk"; *faginella* agrees with this description, except that I should call the ground-color of the wings dull yellowish-ochreous, as they are likewise in the Missouri specimen; while in the Texas species the ground-color is paler, while the transverse stripes are more distinct, showing also a tendency to become more confluent, especially about the end of the disk, where they present to the naked eye something like a faint dark fascia; *faginella* has a more silky lustre than the other species, though this may be owing to the fact that the specimens are newer.

In the Texan specimens, and in that from Missouri, there is no spot at the end of the disk, and it is not distinct in *faginella*. In *quercicella*, "the posterior margin is tipped with blackish, and the cilia are yellowish-brown, containing two dark fuscous hinder marginal lines"; in *faginella*, there is a row of blackish spots around the apex, and a single faint brownish hinder marginal line in the cilia (which in the single specimen before me are a little injured). In the Missouri specimen, there are five very distinct blackish spots around the apex, and behind them in the cilia are two distinct, brownish, hinder marginal lines. Indeed, the cilia may be called brown, with a median, paler, hinder marginal line. Besides the five distinct spots, there are other very faint ones, and the brownish cilia are paler than the spots. The specimens from Texas agree in this respect with that from Missouri. One of these I sent to Mr. Cresson for comparison with Dr. Clemens's type of *quercicella* in the collection of the entomological section of the Phila. Acad. Sci. (formerly American Ent. Soc.). After comparing them, Mr. Cresson informs me that it "is not *Psilocorsis quercicella* Clem., which differs by having a rather broad, distinct, dusky border on the apical margin of the anterior wings, otherwise they look very much alike".

The species are all of very nearly the same size—about eight to nine lines in expanse of wings. Professor Zeller (Bei. z. Kennt. 1873, 40) identifies specimens received by him from Ohio and Texas with *quercicella* Clem. His Texan specimens were collected in the same region of the State from which I have received mine; and as in two collections that I have received from that region there is only one species, I think the

probability is that *quercicella* Zell. (*nec* Clem.) is the same species that I have referred to above, and which I formerly identified with *faginella*, but which I now incline to consider distinct, and for which I suggest the name of *cressonella*. I, however, do this with some hesitation; for while, with the material before me, I consider the species distinct, I recognize the probability that, with fuller collections of bred specimens of all the supposed species, it is not improbable that they will be deemed at most only phytophagic varieties of a single species.

I am not sure but that the species described by me as *Gelechia dubitella* is properly referable to this genus.

C.? OBSCUROMACULELLA, *n. sp.*

The palpi in this species resemble those of *dubitella* above mentioned, and are more robust than in *quercicella*, *cryptolechiella*, &c., mentioned above.

Pale ochreous, so densely dusted with fuscous as to obscure the ground-color; on the fore wings the dusting is least dense along the fold and about the base. The spots on the wings are small, indistinct, and easily effaced; one of them is about the middle of the fold, and one near its end, one above the fold before the middle, one a little larger farther back, a small one at the end of the cell, and four or five indistinct ones are placed farther back, within, but parallel to, the apical margin. The basal half of the outer surface of the second joint of the palpi is brown; third joint ochreous; legs blackish-brown. *Alar expansion* about half an inch. Bosque County, Texas.

GELECHIA.

G. DISCONOTELLA, *n. sp.*

Palpi simple; second and third joints of equal length. Hind wings a little narrower than the fore wings, and rather deeply excised beneath the tip. Pale fuscous, or rather ochreous-yellow, irrorate with fuscous, with a faint silky-roseate hue, and with a longitudinal-elliptical brown spot at the end of the cell. Antennæ white, annulate with brown. Palpi brown, with the tip of the second joint white, and a wide band of the general hue on the middle of the third joint; legs brown on their anterior surfaces. Hind wings paler than the fore wings. *Alar expansion* three-eighths of an inch. Kentucky, in May.

G. SYLVÆCOLELLA, *n. sp.*

Allied to *bimaculella* Cham., but smaller, and with more of a purplish-bronze lustre. *Palpi simple. Hind wings as wide as the fore wings, and a little excised beneath the tip.* Palpi ochreous, with the base of the third joint, an annulus about its middle, and also an annulus about the middle of the second joint blackish. Antennæ blackish, faintly annulate with ochreous. Head pale ochreous, dusted above the antennæ with blackish scales. Fore wings and thorax blackish, microscopically dusted

with ochreous, with a purplish-bronze lustre, with a white or pale ochreous spot on the fold beyond the middle, and with an ochreous or white fascia about the apical fourth concave toward the base, and widest on the costa, and sometimes interrupted about the middle. Cilia of a bluish-smoky hue. Hind wings a little paler than the cilia of the fore wings, and with paler cilia. Abdomen and legs ochreous, banded with fuscous. In addition to the marks on the fore wings above mentioned, there is sometimes another small white spot on the fold. Possibly it may be only a variety of *bimaculella*, but I believe it to be distinct. *Alar expansion* five lines. Kentucky.

In some specimens of *bimaculella* there is a small white spot on the fold before the usual larger one, and sometimes the fascia attains the dorsal margin. The head, too, is rather pale purplish, dusted with black, than "purplish-brown", as it is described originally.

G.? BOSQUELLA, *Cham.*

This species was originally (Can. Ent. vii. 92) referred to *Œcophora*. Afterward (Can. Ent. vii. 124) I transferred it to *Gelechia*. Having but few specimens, I have not examined the neuration, and its external characters leave me in doubt as to its real affinities. I am not sure but that the first reference to *Œcophora* is the best.

G. CRISTIFASCIELLA, *n. sp.*

Cell of hind wings closed, the wings scarcely emarginate beneath the tip; second joint of palpi thickened beneath, but scarcely brush-like : third joint pointed, shorter than the second. Snowy-white; the head with a silvery lustre. Basal half of second joint of palpi and two rings on the third brown. Antennæ annulate with white and brown. Fore wings with a short brown dash just within the costal margin near the base, an oblique brown fascia of raised scales just before the middle and nearest the base on the dorsal margin, a small brown costal and opposite larger dorsal spot before the cilia, and a faint row of brownish spots around the base of the cilia. These marks on the upper surface show through on the lower, which is fuscous. Hind wings with a faint grayish tinge. Abdomen tinged with yellow. Legs brownish on their anterior surfaces. *Alar expansion* six lines. Kentucky, May 11, two specimens.

G. TRIOCELELLA, *Cham.*

Of this species, which was very abundant in Colorado, I have taken a single specimen in Kentucky. The Kentucky specimen is a trifle larger than those from Colorado. In the Colorado specimen, there are three ocellated spots on the fore wings, one of which shows indications of division. In the Kentucky specimen, it is completely divided into two spots. In the former, they consist of a black dot surrounded by a reddish-ochreous annulus; in the latter, the annulus is gray. These spots are very indistinct without the use of a lens.

G. QUINQUECRISTATELLA, *n. sp.*

This species has much the aspect of a *Laverna*. The second joints of the palpi are somewhat incrassate toward their apices, but not at all brush-like, and the third joint is much shorter than the second. The hind wings are wider than the fore wings, and emarginate beneath the apex.

Dark brown; the face and palpi and apical part of fore wings dusted with silvery-gray. On the fore wings, at about the basal one-third, are two raised tufts, one above, the other beneath, the fold; at about the middle is a single discal tuft, and at about the apical one-third are two others; cilia grayish-fuscous, dusted sparsely with hoary; hind wings fuscous, with stramineous cilia; abdomen dark brown; anal tuft yellowish. Legs and tarsi brown, annulate with white at the joints. The scales of the tufts are tipped with hoary, and the tufts nearest to the dorsal margin are placed a little behind the corresponding tufts. *Alar expansion* eight lines. The tuft on the middle of the disk is longer than either of the others, and appears sometimes as if there were two small ones confluent instead of one large one.

G. PALPILINEELLA?, *Cham.*

The species was described from Texan specimens in the Cin. Quar. Jour. Sci. ii. 252, which, appearing brown to the naked eye, show under a lens distinctly enough a white fascia before the cilia, which sometimes appears to be interrupted in the middle. I have taken at the light in Kentucky six specimens, which I mark with the ?, because, while they agree in all other respects with the Texan specimens, three of them show no indication of the fascia with or without a lens; while the other three, in place of the fascia, have a costal and opposite dorsal spot, visible to the unaided eye. Unless the palpi are observed, it may be mistaken for *G. palpianulella.*

G. 6-NOTELLA, *n. sp.*

Head and palpi white, except two annuli, one of which is at the base and the other before the apex of the palpi. Antennæ, thorax, and fore wings blackish-brown; about the basal one-fifth of the wing-length is an oblique white costal streak crossing the fold; farther back, about the middle of the costa, is a shorter one; and before the cilia is a still shorter one, pointing obliquely forward. These three streaks are all tipped with silvery scales, more abundantly on the first two than on the third. On the dorsal margin, respectively nearly opposite or a little before the first two costal streaks, are two tufts of silvery metallic scales; apex with a whitish spot and sometimes dusted with white. The cilia are paler and more grayish than the wings. Abdomen yellowish-white, the last segment stained with fuscous. Legs and tarsi white, banded with dark brown. *Alar expansion* half an inch. Bosque County, Texas.

G. INTERMEDIELLA, *n. sp.*

Intermediate between *roseosuffusella* Clem. and *rubensella* Cham., with one or other of which it has been heretofore confounded. The third joint of the palpi is longer and more acute than in *rubensella*, more like that of *roseosuffusella;* but the fore wings are much less roseate than in either of the other two species, frequently showing no tinge of the roseate hue; and, indeed, that hue when most distinct in it is but barely perceptible.

As in *rubensella* (and sometimes in *roseosuffusella*), the first dark band does not cover the base of the wing. The second band is like that of *roseosuffusella*, but the third extends across the wing, the dorsal portion being, however, paler than the costal, and the costo-apical part of the wing is ochreo-fuscous. In other respects, it resembles *roseosuffusella.* It is, however, darker and more grayish, less yellowish than that species. Bosque County, Texas.

G. LACTIFLOSELLA, *n. sp.*

Palpi simple; creamy-white, dusted with brown, with the outer surface of the second joint brown except at its tip. Basal joint of antennæ pale cream-color, stalk pale yellow. Thorax and fore wings pale cream-color, sparsely dusted with brown, with a small brown spot touching the fold above, near the base of the wing, another a little farther back, and yet farther back near the middle two spots, one on the fold, the other on the disk; sometimes these two last spots are confluent. There is a transverse brown streak at the end of the cell, and a distinct brown line curving around the base of the apical cilia; tip of thorax and a spot on each side before the tip brown. Hind wings and abdomen above white, tinged with silvery, and tuft creamy-white; abdomen beneath creamy, with a brown spot on each side of each segment. Legs creamy, sparsely dusted with brown, annulate with brown at the articulations, and with the tibia of the first and second pair brown. *Alar expansion* half an inch. Bosque County, Texas.

G. FUSCOTÆNIAELLA, *n. sp.*

Palpi simple. Hind wings excised beneath the tip. Snowy-white. Antennæ, apical half of thorax, base of fore wings, two small costal spots, and an apical spot brown; the second costal spot is larger than the first, which is placed about the middle of the costa. Abdomen whitish. Legs brownish-yellow on their anterior surfaces. *Alar expansion* four lines. Bosque County, Texas.

G.? MULTIMACULELLA, *n. sp.*

Hind wings not emarginate beneath the tip; palpi simple; third joint about half as long as the second.

Head, antennæ, palpi, and fore legs dark fuscous, the palpi tinged with ochreous. Fore wings sordid ochreous, covered with small fuscous

spots, a row of which extends entirely around the margins of the wing. On the fold the spots are distinctly confluent. Intermediate and hind legs and tarsi and anterior tarsi fuscous, annulate with ochreous; abdomen fuscous above, whitish beneath. Some specimens are more ochreous than others. *Alar expansion* half an inch. Bosque County, Texas.

There is something about the species which suggests a resemblance to *Tinea* in ornamentation and in the form of the hind wings.

G. CRESCENTIFASCIELLA, *Cham.*

The crescentic fascia is always indistinct, and frequently not discernible, and sometimes in place of it there is simply a small, yellow, costal and opposite dorsal spot. The palpi are pale gray, brownish on the outer surface of the basal half of the second joint, and the tip of the third joint is brown. In some specimens, the wings are sprinkled with small blackish atoms.

G. (ERGATIS) PALLIDEROSACELLA, *n. sp.*

Palpi simple; pale grayish; second joint with thin brownish annuli, one near the base, one near the tip, and one on the middle; third joint, with base, tip, and an annulus between them brownish-gray. Head, thorax, and fore wings pale grayish, dusted with dark gray, and very faintly tinted with roseate; base of the costal margin, an oblique fascia behind it, and a little farther back, but still before the middle, an oblique costal band, extending to the fold, blackish-brown. Behind the last of these streaks, in the middle of the wing, is a short, blackish dash surrounded by a hoary or whitish annulus. Behind the middle is a costal, dark gray spot, opposite to which is a still smaller dorsal one, and opposite to the space between them is another blackish dash, the portions of the wing above and below which are but little dusted, while behind it the apical part of the wing is more densely dusted with brownish scales; cilia gray, with a darker basal line. Antennæ annulate with pale gray and dark brown; upper surface of abdomen and anal tuft pale luteous; legs brown on their anterior surfaces; tarsi annulate with brown and pale grayish-white. *Alar expansion* five lines.

Many specimens show no trace of the roseate hue. Bosque County, Texas.

G. OBSCUROSUFFUSELLA, *n. sp.*

Second joint of the palpi brush-like; hind wings scarcely emarginate beneath the apex.

White. Second joint of palpi brown on the outer surface at the base. Anterior wings suffused with pale fuscous on the disk and apex, with an indistinct whiter fascia before the cilia, slightly angulated posteriorly. Basal half of each segment of the tergum grayish; venter and anal tuft white; hind legs whitish; anterior and intermediate legs brownish on anterior surfaces; their tarsi annulate with white. *Alar expansion* half an inch. Bosque County, Texas.

G. OCHREOCOSTELLA, *n. sp.*

Palpi long, simple; third joint larger than second, acuminate. Hind wings faintly emarginate beneath apex.

Palpi ochreous; second joint suffused with fuscous on outer surface. Antennæ annulate with ochreous; inner surface of hind legs ochreous. *Extreme* costal margin ochreous. Insect otherwise brownish-gray, microscopically sprinkled with white scales. *Alar expansion* two-thirds of an inch. Bosque County, Texas.

G. CANOPULVELLA, *n. sp.*

Second palpal joint brush-like. Antennæ white, dotted above with brown. First and second pair of legs brown on their anterior surfaces, their tarsi annulate with white; base of extreme costa blackish. Insect otherwise hoary or whitish, dusted with bluish-gray, the dusting becoming more dense toward the apex of the fore wings, with five or six rather indistinct grayish spots around the base of the cilia. *Alar expansion* a little over one-fourth of an inch. Bosque County, Texas.

G.? CILIALINEELLA, *Cham.*

The statement in the description of this species, that it is only microscopically distinguishable from *G. solaniiella*, is too broad, though the resemblance is very close. The palpi of this species resemble those of *Cleodora*, though the brush of the second joint of the palpi is smaller than in that genus. I have not examined the neuration, but I am inclined to transfer the species to *Cleodora*. The ornamentation is much like that of *C. pallidistrigella* Cham. and *C. pallidella* Cham. though the white streak on the fold and that on the disk which characterize those species are wanting in this, and in their place, or rather in place of their contained black streaks, there are in this species one or two small brown spots. It has the oblique costal and dorsal white streaks before the cilia as in those species, and behind them the short, white, costal streaks, but not the dorsal ones, and there is only one brown, hinder marginal line instead of three, and that one is indistinct.

CLEODORA.

C. PALLIDELLA, *Cham.*

This species was described from two specimens. On the receipt of a larger collection I find a greater amount of variation than I had looked for. The ground-color of the wings varies from ochreous-yellow to white, suffused with pale ochreous-fuscous. The palpi also vary in a similar manner, the outer surface being usually pale ochreous, dusted with fuscous. By a slip of the pen in the description I have stated that the brown spot is on top of the third joint; it should read second joint. The antennæ are fuscous, and the head and thorax are paler, more whitish than the fore wings; there is a white streak along the fold containing a blackish spot, and parallel to it is a discal, basal, white streak containing a black line or dash. The color of the wings deepens toward the apex, and just

before the cilia are the long, oblique, costal and opposite dorsal white streaks mentioned in the description, and behind these are three short, white, costal and four dorsal streaks, the latter produced into the cilia, which are white, with three distinct, dark brown, hinder marginal lines, placed respectively at their base, middle, and apex; the legs are whitish, stained with fuscous on their anterior surfaces; and the *alar expansion* ranges from six to seven lines.

C. PALLIDISTRIGELLA, *Cham.*

This species is a little smaller than the preceding, ranging from five to six lines in *alar expansion.* The color of the head and appendages and the thorax resemble those of the preceding species, and it is fully as variable. The tegulæ and extreme base of the wings are white, the wings otherwise being much darker than in any of the specimens of the preceding species. They vary from orange-yellow to a dark yellow suffused with fuscous. The streak along the fold and the one above and parallel to it are indistinct, and their contained blackish spots are smaller, *while the costal margin from the middle to the cilia is white;* the costal oblique streak is much less oblique than in the preceding species, and *there are no costal spots behind it;* on the other hand, the dorsal oblique streak is more oblique, passing along the base of the cilia, into which it sends three white streaks. The differences above indicated by the *italics* induce me to consider the species distinct.

ANARSIA.

A. TRIMACULELLA, *Cham.*

I have taken this species also in Kentucky. It was described from Texas.

DASYCERA.

D. NONSTRIGELLA, *n. sp.*

This species differs from *D. newmanella* Clem., and from the two European species, not only by the absence of yellow marks on the wings, but still more by having the basal three-fourths of the antennæ densely clothed with scales; whereas in those species only a small portion is so clothed, and in this species the other fourth is also scaled, though not densely, and the scaling grows less and less toward the apex. It is described from a single ♀ taken resting on a leaf in the woods, June 30th.

Palpi yellow; under surface of third joint brownish. Face yellow, passing on the vertex into metallic yellowish-purple, if I may so describe an indescribable hue. Thorax and upper surface of fore wings rich brownish-purple; hind wings, abdomen, and under surface of fore wings purplish-brown (duller, more brownish, and less purple than the upper surface of fore wings); hind legs purple-brown, suffused with yellowish (other two pair rubbed in pinning). *Alar expansion* $6\frac{3}{4}$ lines. Kentucky.

BUTALIS.

B. TRIVINCTELLA, *Zell.*

I have bred great numbers of *B. matutella* Clem. It varies greatly from specimens indistinguishable from *B. immaculatella* Cham. to forms which I have described as *B. dorsipallidella* and *B. brevistriga*, and some specimens approach very nearly *B. trivinctella* Zell. I am much inclined to consider them all as varieties of one species. I have received *B. trivinctella* from Bosque County, Texas.

COLEOPHORA.

C. TEXANELLA, *n. sp.*

Palpi and antennæ simple. Inner surface of the palpi whitish; antennæ with alternate annulations of brownish-ochreous and white; abdomen brown above, a little paler beneath; hind wings fuscous. Outer surface of palpi, head, thorax, and fore wings rather dark ochreous, with two white lines on the fore wings obscured by dark brown dusting. One of these lines is on the fold; the other extends from the middle to the end of the disk. There is also a little brown dusting along the dorsal margin. Cilia of both pairs of wings grayish-ochreous. *Alar expansion* 5½ lines. Texas, from Belfrage.

C. CINERELLA, *n. sp.*

Dark gray. Palpi and antennæ simple. Face and under surface a little paler than upper surface. *Alar expansion* 5½ lines. Kentucky, July.

C. MULTIPULVELLA, *n. sp.*

Palpi rather short, simple. Stalk of antennæ simple; basal joint tufted, white. Vertex and outer surface of palpi stained with brownish-ochreous, and the antennæ annulate with that color. Fore wings densely dusted with dark gray, so as to obscure the whitish ground-color; the dusting less dense beneath the fold, more dense toward the apex. Hind wings and upper surface of abdomen dark ochreous-gray; under surface of the abdomen white, dusted more sparsely with gray. Legs marked with dark ochreous-gray on their anterior surface. *Alar expansion* half an inch. At light in July. Kentucky.

C. ALBACOSTELLA, *Cham.*

By some inadvertence, I have omitted in the description of this species to state the ground-color of the fore wings. It may be called ochreo-fuscous or fusco-ochreous, with the base of the dorsal margin and the entire costal margin pale ochreous or whitish. Under the lens, very fine, narrow, whitish lines are seen marking the course of the veins. The outer surface of the palpi is fuscous.

C. FUSCOSTRIGELLA, *n. sp.*

Palpi and antennæ simple. Sordid ochreous. Second and third palpal joints each with a brown streak on their outer surface. On the fore

wings, the fold is marked by a narrow black line, and beneath and nearly parallel to it is a pale ochreous line. The base of the dorsal margin is pale ochreous, and it is microscopically streaked with white scales beneath the fold toward the cilia. Above the fold, the wing is somewhat streaked with fuscous. One of these streaks is short and narrow and near the apex; another, longer one, begins about the middle of the disk and goes to the apex. Nearer to the margin is another, which begins indistinctly near the base, but becomes wider and more distinct toward the apex; and another, still wider and more distinct, begins near the base, within the costal margin, and passes back to the cilia, being, however, interrupted beyond the middle by two narrow short ochreous streaks, which mark the position of two subcostal veinlets. The base of the costal margin is ochreous, and between the streaks the wing is ochreous. Legs and tarsi fuscous on their anterior, ochreous on their posterior surfaces. *Alar expansion* nearly half an inch. Bosque County, Texas.

C. BIMINIMMACULELLA, *n. sp.*

Antennæ and palpi simple. White, dusted, or, perhaps more correctly, suffused on the thorax and fore wings with pale fuscous. There is a small blackish spot on the fold at about the middle of the wing-length, and another at the apex of the fore wings. *Alar expansion* nearly half an inch. Bosque County, Texas.

C. QUADRILINEELLA, *n. sp.*

Sordid white, or white very faintly stained with ochreous. The markings are very indistinct. There are three pale ochreous lines, one within the costa, one on or just beneath the fold, and one along the disk, becoming fuscate about the basal third of the wing length, one of the branches going to the costal and the other to the dorsal margin, near the apex. Anterior surface of the legs and under surface of abdomen very pale fuscous. *Alar expansion* not quite four lines. Kentucky, in June. It requires care to distinguish the lines on the wings even in the most perfect specimens.

The larval case is two lines long, and bears some resemblance in form to that of *C. solitariella* as figured in Nat. His. Tin. iv., but is still more like that of *alcyonipenella* in Nat. His. Tin. v., having a clear shining shield covering its upper anterior portion. Food-plant unknown. Kentucky.

C. OCHRELLA, *n. sp.*

Basal joint of antennæ enlarged; second joint of palpi with a minute tuft. Fore wings dark ochreous, sometimes a little fuscous toward the tip; head, palpi, and thorax paler; hind wings what I should call leaden-ochreous; cilia of both pairs ochreous, and a little paler than the fore wings. Antennæ with alternate annulations of white and ochreous-

brown. Abdomen of a dark leaden or slaty hue above, whitish beneath, with the tuft yellowish-white; legs brownish-ochreous on their anterior surface, whitish-ochreous behind. *Alar expansion* over five lines. Kentucky, in June. Larva unknown.

COSMOPTERYX.

C. 4-LINEELLA, *n. sp.*

This species departs so far from the usual type of structure, as well as ornamentation, that I hesitate a little about locating it in this genus. The fore wing is rather more caudate than it is figured for *C. drurella* in Ins. Brit. iii., or for *C. gemmiferella* by Dr. Clemens. The cell is acutely closed, and toward its end the subcostal and median veins each give off three branches; while the apical vein, after giving off two branches to the dorsal margin, and then one to the costal margin, continues through the long *cauda* to its apex.

The face, antennæ, and palpi are white, and also the head, which has a faint purplish tinge, and the antennæ and palpi are marked with longitudinal black lines. (These organs are slightly injured in the two specimens before me.) The legs also are white, the first two pair marked with black on their anterior surfaces; the hind legs only on the tibia. *Vertex, thorax, and basal half of fore wings dark fuscous*, with three white lines on the vertex (one on each eye and one on top); the wings with four white lines (one dorso-basal, one costo-basal, the other two on the disk, neither of them reaching the base, and the one nearest the costal margin being the longest); the costo-basal streak departs a little from the margin; all four streaks end abruptly with the basal brown part, and beyond it the wing is yellow—almost golden-yellow—with an oblique white line along the base of the costal cilia, and three smooth tufts of brilliant metallic scales, one of which is near the costa, another on the disk a little farther back, and the third is before the dorsal cilia. *Alar expansion* four lines. Bosque County, Texas.

ERIPHIA.

E.? ALBALINEELLA, *n. sp.*

Having but a single specimen, I have not examined the neuration, but it is otherwise so near *E. concolorella* Cham. in structure that I place it provisionally in this genus. Head and palpi blackish-brown, with a white line along the under surface of the palpi; antennæ white; thorax and fore wings blackish-brown, with a basal white streak on the wings extending the length of the fold; another white streak leaves the costal margin near the base, and passes obliquely backward almost to the fold, and thence on, nearly parallel with the fold, to the end of the cell, where it almost meets the apex of another shorter oblique costal streak (or rather an indication of one) before the costal cilia; cilia white, with a dark brown, hinder marginal line; hind wings and their cilia and the abdomen purplish-fuscous; anal tuft whitish; legs white,

marked with dark brown on their anterior surfaces. *Alar expansion* four lines. Bosque County, Texas.

E.? NIGRILINEELLA, *n. sp.*

Of this also I have but a single specimen, and place it provisionally in this genus. The hind wings are a little wider than in the preceding species. Head and palpi white, except that the second and third joints of the palpi have each two small black dots on the outer surface; antennæ white. Thorax and fore wings white, with a short, blackish-brown, basal streak, which diverges from the costa, and nearly reaches the fold, and then passes backward, nearly parallel with the fold, nearly to the end of the cell and at a point nearly opposite to the beginning of another costal black streak placed just before the cilia, and which passes backward to the apex. The ornamentation of the fore wings is almost the reverse of the preceding species—white when that is black, black when that is white. Legs white, marked on their anterior surfaces with brown. *Alar expansion* three lines. Bosque County, Texas.

ELACHISTA.

E. TEXANELLA, *n. sp.*

Sordid pale yellowish-white, immaculate, or with faint fuscous microscopic dustings. *Alar expansion* nearly one-third of an inch. *E. parvipulvella* Cham. has wider wings, is more creamy-white, and is distinctly dusted with brownish-ochreous, and has the outer surface of the palpi brownish. In *texanella*, the neuration of the hind wings approaches that of *Cosmopteryx;* the subcostal vein passes straight through to the apical part of the wing, where it is deflected to the *dorsal* margin; it has no branches; the cell is unclosed; the median is furcate on the dorsal margin about the middle, and there are two independent discal branches, which are indistinctly continued through the cell. Submedian and internal distinct. Bosque County, Texas.

E. STAINTONELLA, *n. sp.*

White; the basal third of the costal margin of the primaries pale ochreous, dusted with fuscous; apical half of primaries pale ochreous, dusted with fuscous, with a narrow white fascia before the apex posteriorly angulated, or perhaps the wings are as well described as white with the apex, a wide irregular band just behind the middle (widest on the costa), and the basal third of the costal margin pale ochreous dusted with brownish; the cilia also are somewhat dusted. Hind wings pale fuscous, with pale ochreous or grayish-ochreous cilia. *Alar expansion* three lines. Texas.

Fore wings.—The subcostal vein goes to the apex, emitting three branches before the end of the cell, and becoming furcate before the apex; the median emits three branches before the end of the cell; and the fold is thickened. In the hind wings, the subcostal and median are each simply furcate.

TISCHERIA.

T. QUERCIVORELLA, *Cham.* Cin. Quar. Jour. Sci. ii. 109.

? T. quercitella, Frey, *nec T. quercitella,* Clem.

I have not seen the specimens from which Frey described his species nor the single imperfect one from which Clemens prepared his description. Frey thought his specimens belonged to Clemens's species; but Frey's description applies sufficiently well to the four ♂ and two ♀ before me, and which I cannot reconcile with Clemens's account of his species. In *quercivorella*, the face, palpi, and antennæ are *very pale* lemon-yellow, the vertex being darker—as dark as the fore wings. Clemens says of *quercitella*, "antennæ, head, labial palpi, dark orange-yellow". In *quercivorella*, the thorax and fore wings are lemon-yellow, with the costal margin more reddish, and becoming more so toward the apex, which is reddish-orange and somewhat dusted with darker scales. Clemens says of *quercitella*, "fore wings orange-yellow; apical portion reddish-brown, dusted with dark brown", and does not mention the reddish-orange hue of the costal margin. In *quercivorella* (both sexes), the dorso-apical cilia are paler than those of the apex, which, like those of the hind wings, and the entire hind wings themselves, except a fuscous patch at the base, are pale silvery-yellow; this fuscous patch and a similar one on the under side of the fore wings are peculiar to the male. In *quercitella*, Clemens says the hind wings are "pale yellowish, becoming reddish-brown toward the apex, and the apical cilia dark brownish". This does not apply to *quercivorella* at all. I have quoted the whole of Dr. Clemens's brief description.

In *quercivorella*, the under side of the wings is paler than the upper, and does not become darker toward the apex, but has the costal margin stained with fuscous on the fore wings. The thorax, abdomen, and legs are *pale* yellow, as also is the anal tuft; the front surface of the legs and the under side of the abdomen dusted with fuscous. *Alar expansion* scant three-eighths of an inch. Kentucky and Texas.

T. PRUINOSELLA, *Cham.*

I have received slightly injured specimens from Texas which I refer to this species, which is heretofore recorded only from Kentucky.

T. LATIPENELLA, *n. sp.*

A single specimen (♂) received from Texas is pale yellow or luteus, becoming more orange toward the tip of the fore wings; the hind wings are paler than the fore wings and thorax, being, in fact, nearly white. There is a small fuscous patch on the under side of the fore wings; none on the hind wings. It is a little paler in color than *T. quercivorella* Cham., which it resembles in many respects, especially in size. But the striking peculiarity about it, that which gives it its distinctive character, is the extraordinary width and form of the hind wings. These, instead of being linear-lanceolate, and sharply pointed at the

apex, as is usual, are fully as wide as the fore wings, and approach them in shape. The costal and dorsal margins are almost equally arched; each rounds off toward the apex almost equally at about the apical third of the wing, and the apex is rather obtuse. They are very unlike anything else I have met with in the genus; and if the species had been previously described, I think they could not have been overlooked. The specimen was not pinned when I received it, and therefore I cannot suspect that it was a manufactured species. It belongs no doubt to the Oak-feeding group.

Possibly it may be *T. zelleriella* Clem., which I have not seen. Dr. Clemens says, "Hind wings bluish-gray, tinted with yellow externally toward the tip." "Bluish-gray" would hardly describe the color of the hind wings, which are of a very pale whitish-yellow; but this is the only *Tischeria* that I have seen which has the "hind wings tinted with yellow" along the costal margin "toward the tip". But if it is that species, it is strange that Dr. Clemens has not directed attention to the extraordinary width of the hind wings and their comparatively rounded apex.

As above stated, I have but a single ♂ and no ♀. Dr. Clemens's description of the ♂ applies well enough, except in the particulars just stated; but he describes the supposed ♀ of *zelleriella* as something quite different, and he bred *zelleriella* from mines on the upper surface of Oak leaves. I have another species which I have labelled *zelleriella?*, and which I have bred frequently from mines on the upper surface of Oak leaves. This species agrees with Dr. Clemens's account of *zelleriella*, except that the hind wings are *not* tinted with yellow, as above described in the ♂, and the hind wings of the ♂, if they can be called bluish-gray, are *very* pale. The ♀ agrees better with Clemens's description of *zelleriella* ♀.

In this species, the abdomen is fuscous, the anal tuft yellow; there is no fuscous spot on the under surface of either pair of wings in either sex; the legs, palpi and face, and antennæ are very pale lemon or whitish-yellow. In the ♀, the fore wings are deep saffron or almost reddish-yellow, becoming deeper and more purple toward the apex, with the dorsal cilia paler; hind wings and cilia leaden-gray. The ♂ differs by being much paler yellow on the fore wings, and the hind wings are also paler and wider; though not nearly so wide, and tapering much more gradually to the acute apex, than in *latipennella*, with which it otherwise agrees, except that it lacks the yellow tint along the apical part of the costa. It also differs from the ♂ by having the abdomen yellow instead of fuscous. The mine also seems to differ from that of *zelleriella*, being whitish, elongate, rather narrow, and the cuticle contracted, and it is placed indifferently at any part of the upper surface, whereas Dr. Clemens states that the mine of *zelleriella* is at first a white blotch, but subsequently becomes brown, *and the margin* of the *leaf is curled.*

I have known this species for years, but hesitated to describe it as new, lest it might prove to be *zelleriella.* I am, however, pretty well

convinced that it is new, and suggest for it the name *T. clemensella*. It is the same species referred to by me as *T. zelleriella?* in Cin. Quar. Jour. Sci. ii. 110 (April, 1875). So far as I have been able to learn, there is no authentic specimen of *zelleriella* now extant, and we must content ourselves with Dr. Clemens's brief description.

Messrs. Frey and Boll describe a species as *zelleriella* Clem., suggesting the name *complanoides* for it if it should prove distinct from *zelleriella*. It is impossible to say whether *complanoides* = *zelleriella* or not; but *complanoides* has "the antennæ, head, and breast vivid egg-yellow, of the same color as in the European species (*complanella*), and the fore wings of the same color". In *clemensella*, the face, palpi, breast, and legs are paler than the fore wings, even in the ♂, and very much so in the ♀; and, as I understand the description of *complanoides*, the base of the hind wings is darkened, which is not the case with this species. I do not recognize any species that I have seen in Dr. Clemens's account of *zelleriella*, nor in that of *complanoides* by Frey and Boll.

T. ÆNIA, *Frey & Boll.*

In a paper in the Cin. Quar. Jour. Sci. i., I denied the distinctness of this species, which mines the leaves of *Rubus villosus*, from *T. malifoliella* Clem., which mines Apple leaves. The species had been long known to me before it was described by Frey and Boll as *T. œnia*, and was referred to by me (*loc. cit.* iii. 208) as identical with *malifoliella*. I am not now so certain that it is identical, and probably the greater number of entomologists would concur with Frey and Boll in regarding it as a new species, or a phytophagic species or variety; and yet the only constant or material difference that I have observed is that *T. œnia* is of a richer bronzed-brown, while *malifoliella* is of a duller dead brown. I have received from Mr. Belfrage, from Texas, a single specimen in good condition, and now in the museum at Cambridge, labelled *T. œnia?*, the food-plant of which is unknown, and which seems to me to bear about the same relation to the Blackberry species that the latter does to the species from the Apple; that is, it is of a brighter, more brassy lustre than *T. œnia* from the Blackberry. It is a little smaller than *T. œnia* and *T. malifoliella*, which are of nearly the same size, and the face and palpi are of a different hue. It will probably prove to be a new species. They may all be regarded as "phytophagic species".

T. PULVELLA, *n. sp.*

Antennæ pale ochreous; vertex whitish, stained with ochreous; face and palpi white; thorax and fore wings white, suffused with pale ochreous, and *densely* dusted with ochreous-fuscous, paler and less dusted beneath the fold; hind wings and cilia pale lead-color; under surface of fore wings ochreo-fuscous, that of the hind wings whitish; both wings wide for this genus. Abdomen whitish, dusted with fuscous; anal tuft yellowish-silvery; legs yellowish-white. *Alar expansion* four lines. Texas.

LITHOCOLLETIS.

L. NECOPINUSELLA, *n. sp.?*

The nearest American congeners of this species are *L. cratægella* Clem. and *L. hageni* Frey. The latter I know only through Professor Frey's description. *Possibly* the insect before me may be that species, though I am unable to detect any trace of saffron-yellow in the ground-color of the fore wings, which are dark golden-brown; the third dorsal spot, which seems to be distinct in *hageni*, is here only indicated by its dark margin, there being no white scales; and the two last costal streaks do not cross the entire wing as they do in *hageni*, if I understand Professor Frey's description of that species.

It cannot be mistaken for *cratægella* Clem., because the thorax and basal portion of the fore wing (except the costal margin) are white here, while in *cratægella* they are golden-brown (marked, however, by median and dorsal basal white streaks, which are frequently continued on to the thorax); the face and palpi are here pure white, and the upper side of the antennæ is darker fuscous than in *cratægella*. (Dr. Clemens's description of *cratægella* is not very accurate. He says, "Antennæ, tuft, and front dark silvery-gray." I should call the face and under side of the antennæ silvery-white, while the tuft is rather a brownish than a silvery gray. He makes no mention whatever of the white streak which extends along the base of the dorsal margin as far as the basal fourth of the wing-length, nor of the apical black spot; and what he describes as "the streak of black scales *in the middle* of the wing *at the apex*, extended backward between the streaks as far as the second dorsal and costal streaks", is only the extended dark margins of the costal and dorsal streaks, and frequently extend back to the apical spot.)

This species is also larger than *cratægella*, having an *alar expansion* of over four lines, whilst *cratægella* varies from scarcely three to something over three and three-fourths; the third dorsal streak in *cratægella*, though small, is distinct, while in this species it is only indicated by its dark margin; in this species, too, the dark margins of the first costal streak are produced to the base of the wing, the anterior dark margin separating the narrow golden-brown basal portion from the wide white portion, and the posterior dark margin extending along the extreme costa. The second costal streak is a little more oblique in this species than in *cratægella*, while the fourth is perpendicular to the margin here, and points obliquely forward in *cratægella*. In this species, too, there is a brown ciliary apical streak extending out from the apical spot—something like the hook in some species of *Gracilaria*—and this is the only American *Lithocolletis* thus far seen by me which possesses this peculiar mark; the dorsal cilia are also tipped with brown; all the dark marks of the wings shine with a peculiar bluish-black lustre. But in all other respects the fore wings seem to be marked exactly as in *cratægella;* that is, the ground-color is brownish-golden, and the position and number of

the marginal streaks are the same—three dorsal and four costal, the third dorsal minute, the second large, and the first very large, and the first costal very oblique. In this species, however, these marginal streaks are dark-margined on both sides, while in *cratægella* it is only the first costal and first and second dorsal that are so margined, the others only dark-margined before. Apical spot circular, and hinder marginal line, as in *cratægella*, at the base of the cilia.

The hind wings and cilia dark lead-brown—darker than in *cratægella*. Abdomen fuscous, a little paler beneath, and tuft yellow. Legs and tarsi white, marked on the anterior surfaces with brown. Kentucky, early in May.

L. POPULIELLA, *n. sp.*

I have bred a few species from small tentiform mines on the under side of leaves of the Silver-leaf Poplar, which, though very distinct from *argentinotella* Clem. and *L. fitchella* Clem., I place in the same group with them. It is perhaps nearer to *L. carpinicolella* than to any of the other species figured in the Nat. Hist. Tin.

Palpi, head, tuft, antennæ, under surface of thorax, legs, and abdomen pure snowy-white; upper surface of abdomen and fore wings pale golden: there are three white longitudinal streaks on the thorax (one median, and continuous with a dorso-basal white streak on the wings, the other two passing over the tegulæ* and continuous with a median basal white streak on the wings); there is also a costo-basal white streak on the fore wings, and these three basal wing-streaks are of about equal length, and less than one-fourth of the length of the wings. Immediately behind the dorso-basal streak, and scarcely distinct from it (probably sometimes confluent with it), is the first dorsal streak, which approaches a square form, and is dark-margined before and above. Almost opposite to this dorsal streak, but a little behind it, is the first costal streak; it is oblique, not pointed, and is dark-margined before. The second costal and second dorsal are opposite each other, the costal one being the largest of the two, triangular and dark-margined before. The third costal and third dorsal are nearly opposite, the costal being perhaps a little farther back, and being larger than the dorsal, and larger also than the second costal; both are dark-margined before. These are only the three dorsal streaks. The fourth costal is just before the apex, points a little obliquely forward, and is margined behind by a small apical patch of brown dusting. Cilia white, with a brownish hinder marginal line at their base. *Alar expansion* one-fourth of an inch. Ohio and Kentucky.

L. BIFASCIELLA, *n. sp.*

Tongue, palpi, and face silvery-white, the outer surface of the third joint of the palpi brown toward the tip, and the forehead tinged with

*Following Burmeister, I have sometimes called these organs "patagia".

saffron. Tuft pale saffron, darker toward its sides. Antennæ silvery-white beneath, shining brown above. Thorax and fore wings deep reddish-saffron, with two silvery-white fascia on the wings, dark-margined behind, each of which is nearly straight, one placed at about the basal third, the other behind the middle: immediately before the cilia are a costal and an opposite dorsal silvery-white streak, also dark-margined behind; apex densely dusted with brown, forming a large spot, which has a few white scales before it and others intermixed; cilia saffron, tipped with silvery-gray, and with a dark brown, hinder marginal line before the tips. Hind wings and upper surface of the abdomen dark fuscous. Under surface of the abdomen silvery-white, with a large yellow spot on each side of each segment, and one on the under surface of each of the last three or four joints: anal tuft yellow, tipped with silvery. First (and second?) pair of legs brown on their anterior, white on their posterior surfaces; the tarsi annulate with white; hind legs white, the tarsi annulate with fuscous, and a pale saffron spot on the outer surface of the tibia. *Alar expansion* scant four lines.

Described from a single ♀ bred from a long, rather wide, and irregular mine on the upper surface of a leaf of the White Oak (*Q. alba*). The pupa was concealed under a white, silken web over the midrib, and the larva is unknown.

It bears an evident, though not very close, relationship to *L. obstrictella* Clem.; but in the latter, instead of the costal and dorsal spots before the cilia, there is a white fascia. But this alone would not be necessarily of specific value. The streaks are, however, a little differently placed; and *obstrictella* has a whitish band near the tip of the antennæ, which is absent in this species; and Dr. Clemens makes no mention of the brown outer surface of the third joint of the antennæ, nor of the yellow spots on the abdomen. He simply says, "abdomen black", and makes no mention of the palpi. But there is a more decided difference. The larva of *obstrictella* belongs to the cylindrical group, and makes a tentiform mine on the under surface of leaves of "the Black Oak" (*Q. tinctoria?*). This mine is on the upper surface of White Oak leaves, and though the larva is unknown, the character of the mine indicates that it belongs to the "flat" group. There are other differences, but these here indicated are sufficient.

As compared with *L. tubiferella* Clem., to which the mine and the imago bear some resemblance, it is deeper reddish-saffron than *tubiferella*, which also has the tuft white, has no dorsal and no costal streak behind the fascia, and the apex is not dusted. It is more like *L. guttifinitella* Clem., or rather it is between *obstrictella* and *guttifinitella;* but the latter always has the first fascia oblique toward the base of the costa, the costal and dorsal spots in the apical part of the wing pointing obliquely backward and smaller, and the dusting is scattered along the base of the cilia, rather than, as in this species, forming a spot which is white-margined before. By these characters, also, *guttifinitella* may be dis-

tinguished from *cincinnatiella* Cham., though perhaps one might not find much difference in the published descriptions. *L. cincinnatiella* is also more golden than saffron, with the dusting of the fasciæ produced back along the middle of the wings. There are also other minute differences between the species mentioned, and there is no difficulty in distinguishing bred specimens.

L. AUSTRALISELLA, *n. sp.*

No basal streak nor apical spot on the fore wings, which are pale golden (about the color of *L. argentinatella* Clem.). There is no distinct hinder marginal line in the pale yellow cilia. The marks on the wings are, first, a small, white, dorsal streak; then an oblique, white, costal streak about the basal third of the wing-length; a silvery-white fascia about the middle, which is posteriorly angulated nearer to the costal than to the dorsal margin; a small, silvery-white, costal spot immediately before the cilia, and a longer dorsal one opposite to it, extending obliquely backward; all of these marks are posteriorly dark-margined, the dark margin of the last costal and dorsal streaks almost meeting in the apical part of the wing; apex dusted with dark brown on a white ground. Thorax pale golden, with a white streak from its anterior margin to the apex. Head, tuft, palpi, and antennæ silvery-white, each joint of the antennæ dotted above with brown, and the basal joint pale golden above. Under surface of body, wings, and legs pale luteous, the legs stained with brownish on their anterior surfaces. *Alar expansion* three lines and one-half. Bosque County, Texas.

L. BICOLORELLA, *n. sp.*

Specimens of this species were bred by me three years ago from flat mines and larvæ, on the upper surface of leaves of *Quercus bicolor*, and, without sufficient examination, were labelled in my cabinet "*L. ulmella*". I am now satisfied that they are distinct species, though closely related; *bicolorella* is between *basistrigella* Clem. and *ulmella* Cham. The stripe along the dorsal margin of the primaries, which in *basistrigella* only extends about or but little over one-half of the wing-length, in *bicolorella* extends to the cilia, and in *ulmella* it is deflexed along the base of the cilia to the apex, and the oblique dorsal streak, which in *basistrigella* is placed at the end of the dorsal basal streak, is absent in both the other species. In this species there are two costal oblique streaks placed almost as in *ulmella*, which has three, and behind these two streaks there are three small white dots within the margin, and one of them touching the brown dusting which is placed along the base of the dorsal cilia, and the second costal streak has the tip margined with brown dusting. The wings, both in this species and in *ulmella*, are perhaps better described as yellowish-saffron than as pale golden. The head and palpi are white, the tuft with a little yellowish intermixed, and the antennæ also are annulate with brown, as in *ulmella*. The abdomen is paler yellow than the wings, and tinged above with fuscous, and on the upper sur-

face of the thorax has a white line from its anterior margin to its apex (*ulmella* also has this line sometimes). *Alar expansion* as in *ulmella*. Kentucky.

ACANTHOCNEMES, *gen. nov.*

The species on which I found this genus is very near to *Phyllocnistis* Zell. As in that genus, the posterior tibiæ are set around with spines or bristles, which in this species are also found on the basal tarsal joint (hence the generic name). It differs from *Phyllocnistis* as follows: the face is wider in proportion to its length, the antennæ are much shorter, and the basal joint smaller, while the stalk is serrated toward its apex. *The maxillary palpi are well developed, being as long as the first and second joints of the labial pair.* In the dead insect, both pairs droop. The anterior wings are more decidedly caudate than in *Phyllocnistis;* more so in fact than in any species known to me, unless it be some species of *Cosmopteryx;* and the neuration, while resembling that of *Phyllocnistis* more nearly than any other genus, is yet sufficiently distinct from it. The costal vein is short and indistinct; the subcostal is also very indistinct, and appears to run straight through the wing to the margin before the apex. The median vein, however, is *very* distinct, running through the middle of the wing and gradually disappearing in the "cauda" or produced apex, just before which it gives a branch to the *costal* margin; cell unclosed (?) (or discal vein oblique and subobsolete); there appears also to be a *very indistinct* branch from the median to the dorsal margin before the distinct one to the costal margin, so indistinct, indeed, that I am not sure that it represents a vein at all; submedian tolerably distinct. Hind wings linear with the costal; submedian (?) and internal veins moderately distinct; the subcostal, obsolete at its base, becomes gradually more distinct as it passes to the extreme apex of the wing. Cilia of both wings long.

As I have examined the neuration of only a single specimen, and a single wing only of each pair, it may prove to be more distinct than I have found it.

As shown by the following description, the ornamentation, while to some extent resembling that of *Phyllocnistis*, is yet of a different pattern.

A. FUSCOSCAPULELLA, *n. sp.*

Head, palpi, basal antennal joint, anterior half of the thorax, and fore wings except at the base, silvery-white, *faintly* tinged with yellowish. Base of the fore wings and apical part of thorax fuscous. Antennal stalk yellowish. The brown base of the fore wings is posteriorly margined by a narrow fascia of a more pure silvery-white than the remainder of the wings. Legs yellowish-fuscous on their anterior margins. *Alar expansion* a little over three lines. Bosque County, Texas.

PHYLLOCNISTIS.

P. ERECHTITISELLA, *n. sp.*

Only the mine and larva are known. I have not succeeded in rearing

the imago. I have known the mine for many years, but believed it to be Dipterous until the fall of 1876, when I found specimens containing the larva and others with the empty pupa case projecting from the mine. Kentucky.

NEPTICULA.

N. QUERCIPULCHELLA, *n. sp.*

Closely allied to *unifasciella* Cham. and equally as pretty. The larva is bright green, with a deeper green line of contents; it makes a long, narrow, winding, and gradually widening track, similar to that of *N. quercicastanella* Cham. in leaves of *Quercus alba*, and is, I believe, the only species of the genus which leaves an old mine to make a new one. From the structure of *Nepticulæ* larvæ this would seem hardly possible, but I do not know how otherwise to explain the fact that I have taken a leaf containing a mine more than half finished, and which had evidently been but a little while unoccupied; and on the same leaf, not an inch distant from it, was a new mine just begun, and yet containing a large larva almost fully grown, and which had evidently just reëntered the leaf; the mine not being more than twice as long as the larva, and in size answering exactly to the terminal portion of the empty mine, and being in all respects exactly like it. After continuing to feed until the new mine was something more than half an inch long, the larva left it, and spun its cocoon on the earth in the bottom of the breeding jar, and I bred the imago from it. The larva was well grown, certainly several days old, when it began the new mine, and *came from somewhere*, whether or not it came from the empty mine in the same leaf. The mine, larva, and insect are larger than in *quercicastanella.*

The head is black; antennæ fuscous; occiput, eyecaps, palpi, and feet yellowish-white, silvery; thorax and fore wings deep blue-black (I think so, though it is exceedingly difficult in so small and resplendent a creature to get the correct hue), bronzed, and with purple and violet reflections; the fascia is behind the middle, silvery-white, and a little widest on the dorsal margin, and the wing behind the fascia is darker than before it, whilst the cilia are paler and less lustrous than the wing; under surface of fore wing; cupreus-black, as also are the abdomen and legs. *Alar expansion* two lines. Imago, June 19, after only a week in the pupa state. Kentucky.

N. JUGLANDIFOLIELLA, *n. sp.*

Dr. Clemens gave this name to a mine and larva observed by him in Walnut leaves; and as his description *of the mine*, as far as it goes, answers to the mines from which I bred this species, I adopt the name. I have, however, nearly always found several mines in the same leaflet at the same time, and very much contorted and frequently crossing each other. I did not observe that the larvæ differed from other *Nepticulæ* larvæ, though Dr. Clemens mentions its resemblance to the larva of a Dipteron. The mines are common in the latter half of June, and the

moths emerge about the 1st of July. Dr. Clemens found some empty mines and some larvæ in August.

The imago resembles that of *quercipulchella* Cham., but is less resplendent and smaller, scarcely measuring two lines in *alar expansion*. The occiput, eyecaps, and palpi are silvery yellowish-white; the head brownish rusty-red; antennæ fuscous; fore wings dark purple-brown, nearly black, but strongly purplish, with the cilia paler, and a pale golden or rather yellowish-silvery fascia behind the middle, which has its posterior margin straight and its anterior slightly concave. The first and second pairs of legs are silvery yellowish-white, and the third pair is of the same hue with the fore wings, with the basal joints paler, and of the same hue with the under surface of the abdomen. Kentucky.

N. LATIFASCIELLA, *n. sp.*

Face pale rusty-yellowish; vertex dark brown; palpi and basal joint of antennæ (eyecap), thorax, a broad fascia about the middle of the fore wings, and the cilia silvery-white, tinged with pale yellowish (except the cilia). The tuft is rather small, the antennæ are pale grayish-fuscous, tinged with silvery; the fascia is very broad, nearly straight on its anterior and convex on its posterior margin; the costal cilia are fuscous; upper surface of abdomen fuscous, lower pale grayish-fuscous, and the legs darker fuscous. *Alar expansion* two lines.

As will be evident on comparison of this description with that of *N. nigriverticella* Cham. in Cin. Quar. Jour. Sci. ii. 118, there are many points of close resemblance between them, although they are very distinct species. It was taken resting on the trunks of Chestnut-trees (*Castanea americana*), the leaves of which were full of empty *Nepticula* mines, about the middle of August. Kentucky.

N. BOSQUELLA, *n. sp.*

Palpi and eyecaps white; antennæ yellowish-fuscous; head deep black; thorax and fore wings pale creamy-white, dusted rather densely with fuscous; hind wings and cilia of both pairs yellowish-silvery; abdomen brown on top; anal tuft yellowish-white; anterior and middle legs brown on their anterior surfaces; hind legs and under surface of abdomen pale creamy-yellowish. *Alar expansion* four lines. Bosque County, Texas.